Effects of the psychophysiological stress response in human behavior

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Abstract

Stress is a multifactorial organic response aim to deal with the environmental demands. Human behavior under stress involve a number of psychophysiological changes. This special issue cover 12 of the most recent studies addressing the role of stress in extreme situations. One of this studies analyzes the stress response during defensive and offensive flight manoeuvres, supporting the central role of high physical fitness via specific training programs for fighter pilots. Another paper describes the results of a meta-analysis of randomized controlled trials favouring the use of additive stress of normobaric hypoxic conditioning in overweight or obesity individuals versus compared with normoxic condition. Another study supports the used of simulation in higher education contexts as useful tools to induce stressful situations in biomedical students, who failed to habituate during assessment sessions, particularly those how felt lonely. In this line, perceived life stress and cognitive restraint are associated with increased comfort food intake under stress and lead to weight gain and obesity, founding how stress-induced negative affect predicted more snack intake for women with higher perceived life stress, and that higher perceived life stress was associated with heightened emotional relief upon snacking under stress. Indeed, this paper explores how stress increases further the intake of reward-driven comfort food in individuals with negative affect. The assessing methods of hormonal stress response are basic to understand the physiological stress response. Specifically, in primary-school children the assessment of both salivary and cumulative cortisol levels and their associations with emotional and behavioral symptoms showed an altered hypothalamic–pituitary–adrenal axis activity, depicted in salivary and hair cortisol parameters, which might be a risk factor for mental and physical health in long-term. This study suggest that higher levels of stress as measured by hair or salivary cortisol are associated with higher risk of child emotional and behavioral symptoms. Two studies focus on animal models: The first one, describe how chronic restraint stress may result in depression impaire gonadal dysfunction in rats . The second study suggest that exposure to early life adversity (maternal separation) resulted in increased the risk of altered

behavioral problems later on. In addition, this special issue also includes a study that describe the psychophysiological stress response in adolescent chess players using electroencephalography and heart rate variability. Another study assesses a sample of military reservists, guardsmen and first responders, supporting the link between stress and heart rate variability. Finally, three studies focus on reducing or managing stress. In this line, a new study found that both aerobic exercise and high intensity interval exercise affected the mood of a sample of American football athletes. Another study conducted a randomized clinical trial supporting the anxiolytic role of lavender oil (inhaled), the most powerful among the essential oils, reducing peri-operative anxiety in patients undergoing surgical procedures. And Mindfulness-based intervention reduce physiological and another study explored how psychological stress responses which might influence performance under competition settings.

Keywords: stress response, stress effects, comparative study, managing stress.